OpenBGPD

Claudio Jeker
OpenBGPD for IXP route-servers
OpenBGPD at IXP

Running OpenBGPD as a route-server with full filters is too slow

Old RIB design shows troubles with scaling
   Config reload block updates and withdraw until finished

At a small IXP like YYCIX config requires 370’000 filter rules and reloading the config takes 1h to finish

As a result most IXP route-server run a bird monoculture

   It is important to make OpenBGPD a viable alternative again
A major effort is required
Solving the issue

Have a full time developer working on OpenBGPD funded by

RIPE NCC

Community Projects Fund

and

DE CIX

NETNOD

amsix

BCIX

Asteroid

LONAP

NAMEX
OpenBGPD in 6.4

- RFC8212 compliance (default deny policy)
  Be careful when updating from 6.3 to 6.4.
- RPKI ROA support (static table, no RTR support)
- Sets for prefixes, ASnum and origins (prefix + source-as)
  Replace large amount of filters with a single fast lookup
- Background soft-reconfiguration on config reload
  On reload new withdraws and updates are now processed
- 154 commits since 6.3 (close to 8% of all commits)
Results

YYCIX (Calgary Internet Exchange) using arouteserver to generate config

6.3: generated config consists of 370,000 filter rules

6.4: with as-set, prefix-set and origin-set ruleset is now below 6000 rules

Switching to as-set & prefix-set for IRR based filtering reduced initial config to 95,000 rules. Using origin-set for the RPKI and ARIN DB filtering did the rest.

Background soft-reconfiguration no longer blocks update processing during a config reload.
OpenBGPD in 6.5 (May 2019)

Better community filtering

   Matching more than one community per filter rule
   Faster set and delete of communities

More filter refinements and tuning

Further RIB refactoring, make multiple RIB support faster

Resurrect portable version and keep it alive (like OpenSSH and LibreSSL)
   No FIB support for now
Future Projects

Multi-thread support in the RDE for filtering and maybe some other tasks

In the portable version add FIB support for other BSDs and Linux

New features (ADD_PATH, BGP multipath, BMP, RTR)
Thanks

RIPE NCC

Community Projects Fund

and

NETNOD

amsix

DE CIX

BCIX

LONAP

Asteroid

NAMEX

also a big thank you goes to Job Snijders for making it possible
Questions?